



The Ground-based W-band cloud radar collects data from a containerized radar shelter

SALIENT FEATURES

- 1.3 kW Extended Interaction Klystron transmitter
- 0.25° beamwidth antenna
- High sensitivity of -38 dBZ at 5 km
- Containerized radar shelter may be deployed to remote locations
- Radar may be remotely operated through a network connection, remote fault clear and transmitter restart
- Data output in netCDF format

The ground-based W-band radar makes cloud measurements to a 15 km height above the instrument.

EIK Transmitters

The Extended Interaction Klystron (EIK) transmitters provide high output power, and enable excellent sensitivity, without the range-doppler coupling and ambiguity inherent to FMCW radar systems.

High Power Duplexer

The latching-circulator based duplexer assembly switches rapidly between transmit and receive modes, while maintaining high isolation between transmit and receive paths. This enables high-power pulsed mode operation at W-band.

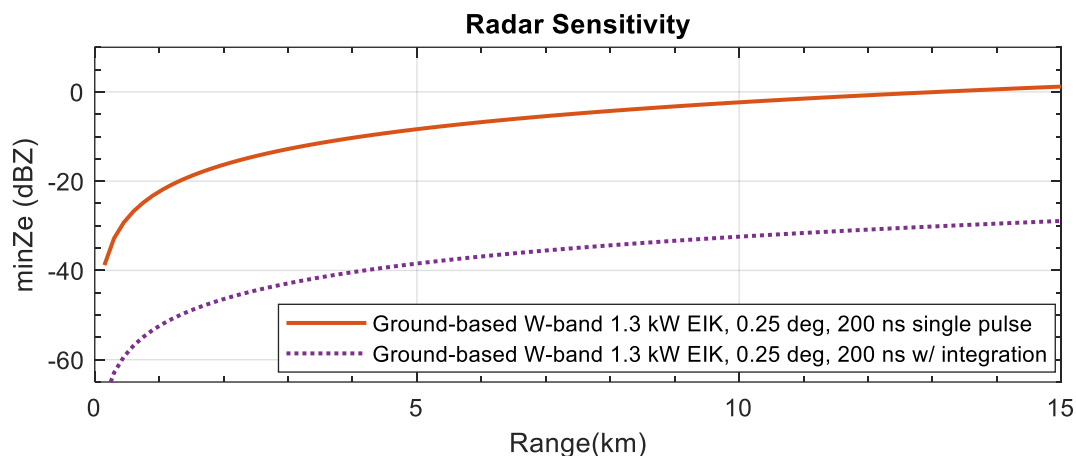
Technical Specifications

SYSTEM SPECIFICATIONS	
Radar Type	Pulsed Doppler
Polarization Modes	Single-polarization
Frequency range	94.56 GHz
Beam width	0.25°
Along-range resolution	Typ. 30m, configurable between 15-150m
Sensitivity	-38 dBZ at 5 km
Max. Range	15 km
Noise figure	12 dB

ANTENNA	
Type	Center-fed parabolic
Reflector diameter	1000 mm
Gain (at 5.6 GHz)	45 dBi
Half-power beam width	< 0.7°
Sidelobes at $\pm 45^\circ$ planes	< -15 dB
Return Loss	> 15 dB

TRANSMITTER	
Amplifier Type	Extended Interaction Klystron
Peak/Avg power	1.3 kW/3W
Pulse width	0.1-5 μ s
Duty Cycle	1% maximum
Pulse Repetition Frequency	2 – 10 kHz, continuously variable

SIGNAL PROCESSING	
Signal processor	RVP901, LapXM
FFT points	64 - 256 pulses
Averaging	8 FFTs, typical
Data outputs	SNR, dBZ, Vertical Velocity, Spectrum Width
IF digitization	16 bit, 100 MHz
Number of range bins	Up to 256
Processing mode	FFT
Range resolution	15m-150m



Radar Rack and Data Storage

The radar rack houses the data acquisition and signal processing computers. These also store the collected data and may be transferred in real-time or via network download.

Radar Shelter

The radar is deployed in a 20-foot ISO shipping container serving as the radar operations shelter. The antenna points up through a window cut into the top of the container. An optional stabilization system permits shipboard deployments.

Contact information

For more information about the Ground-based W-band radar, please contact:

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